

**vita**

**David K. Gattie**

**RESEARCH INTERESTS**

Material and energy flow analysis, natural resource engineering, systems and engineering ecology, ecological network analysis, watershed management, engineering design and technology education.

**EDUCATION**

Ph.D. (Ecology), University of Georgia, 1993.

B.S.A.E. (Agricultural Engineering), University of Georgia, 1983.

**PROFESSIONAL POSITIONS HELD**

2006- Present	Associate Professor, University of Georgia, Biological & Agricultural Engineering, Athens, GA
2000-2006	Assistant Professor, University of Georgia, Biological & Agricultural Engineering, Athens, GA
1998-1999	Instructor, University of Georgia, Biological & Agricultural Engineering, Athens, GA
1997-1998	Temporary Instructor, University of Georgia, Biological & Agricultural Engineering, Athens, GA
1996-1997	Part-time Temporary Instructor, University of Georgia, Biological & Agricultural Engineering, Athens, GA
1995-1998	Environmental Engineer, Oak Ridge Institute for Science and Education (stationed at U.S.E.P.A, NERL, Athens, GA)
1993-1997	Adjunct Mathematics Instructor, Truett-McConnell College, Watkinsville, GA
1992-1995	Sr. Environmental Engineer, DynCorp/TAI, Athens, GA
1986-1992	Environmental Engineer, Technology Applications Inc., Athens, GA
1984-1986	Energy Services Engineer, Sumter EMC, Americus, GA
1983-1984	Production Management, Ralston Purina Co., Gainesville, GA

**SCIENTIFIC AND PROFESSIONAL SOCIETIES**

American Ecological Engineering Society (AEES)  
Institute of Biological Engineering (IBE)  
American Society of Agricultural and Biological Engineering (ASABE)  
American Society of Engineering Education (ASEE)  
International Technology Education Association (ITEA)

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### **HONORS, AWARDS AND HONORARY SOCIETIES**

<b><u>Year</u></b>	<b><u>Recognition</u></b>
2006	College of Agricultural & Environmental Sciences Early Career Teaching Award
2006	Biological & Agricultural Engineering Teacher of the Year
2003	Teacher of the Year, Institute of Biological Engineering, UGA Chapter
2002	Non-Tenured Faculty Award, American Society for Engineering Education, Biological and Agricultural Engineering Division
2002	Distinguished Teaching Award, <i>Gamma Sigma Delta</i> Honor Society
2000	Special Recognition for Outstanding Contributions to Engineering Education, UGA Biological & Agricultural Engineering Student Body
2000	AGHON (Agricultural Honor Society)
1999	Teacher of the Year, ASAE, UGA Section
1999	Outstanding Leadership Among University Professors, UGA Student Government Association
1998	Dedication of <i>Engineering at UGA</i> Magazine
1998	Teacher of the Year, ASAE, UGA Section

### **OTHER PROFESSIONAL ACTIVITIES**

Editorial Board, International Journal of Ecodynamics

Pre-Engineering Advisory Board, The College of New Jersey

Representative to Technical Advisory Committee for the Joint Senate/House Comprehensive Water Plan Study Committee for the State of Georgia

### **PUBLICATIONS**

#### **Chapters in Books (3)**

1. Smith MC, Thomas DL, Gattie DK. 2003. Agricultural Runoff Characteristics. *Encyclopedia of Water Sciences*, pp. 15-18, Marcel-Dekker Publisher.
2. Vellidis GW, Gattie DK, Smith MC. 2000. *Ecology and Technology, Encyclopedia of Life Support Systems, 5:11.4.1 (EOLSS)-UNESC*.
3. Hill R, Kellam NN, Gattie DK. 2008. Chapter 6: Essential Mathematics and Science Content as a Base for Understanding and Teaching Engineering Principles. Council for Technology Teacher Education Yearbook: Engineering and Technology Education, 2008, 103-132.

**Journal Editorship (2)**

1. Gattie DK, Mitsch WJ (Eds). 2003. Special Issue *Ecological Engineering*, "The Philosophy and Emergence of Ecological Engineering", Vol.20, No.5:327-454 (127 pp).
2. Schramski JR, Gattie DK (Eds). 2009. Special Issue *Ecological Modelling*, "Cross-Disciplinary Informed Ecological Network Theory – Selected Papers from the Third Workshop on Ecological Network Analysis", Vol. 220, No. 22:3111-3240 (129 pp).

**Editorials (2)**

1. Schramski JR, Gattie DK. 2009. Cross-disciplinary informed ecological network theory. *Ecological Modelling*, 220(22):3111-3112.
2. Gattie DK, McCutcheon SM, Smith MC. 2003. Ecological Engineering: The State-of-the-Field. *Ecological Engineering*, 20(5):327-330.

**Refereed Scholarly Articles (In Print, In Press or Accepted) (25)**

1. Belflower JB, Bernard JK, Gattie DK, Hancock DW, Risse LM, Rotz CA. 2012. A case study of the potential environmental impacts of different dairy production systems in Georgia, *Agricultural Systems* [Accepted: *Agricultural Systems*].
2. Gattie DK, Kellam NN, Schramski JR, Walther J. 2011. Engineering Education as a Complex System, *European Journal of Engineering Education*, 36(6):521-535.
3. Schramski JR, Rutz ZJ, Gattie DK, Li K. 2011. Trophically Balanced Sustainable Agriculture, *Ecological Economics*, 72:88-96.
4. Schramski JR, Patten BC, Kazanci C, Gattie DK, Kellam NN. 2009. The Reynolds transport theorem: Application to ecological compartment modeling and case study of ecosystem energetics, *Ecological Modelling*, 220(22):3225-3232.
5. Gattie DK, Wicklein RC. 2007. Curricular value and instructional needs for infusing engineering design into grades 9-12 technology education, *Journal of Technology Education*, 19(1):6-18.
6. Gattie DK, Kellam NN, Turk HJ. 2007. Informing ecological engineering through ecological network analysis, ecological modelling, and concepts of systems and engineering ecology, *Ecological Modelling*, 208(1):25-40.
7. Gattie DK, Foutz TL. 2007. Systems and engineering ecology: Developing formal foundations for ecological engineering. *International Journal of Engineering Education*, 23(4):683-690.
8. Bata SA, Borrett SR, Patten BC, Whipple SJ, Schramski JR, Gattie DK. 2007. Equivalence of throughflow- and storage-based environs. *Ecological Modelling*, 206(3-4):400-406].
9. Birkett C, Tollner EW, Gattie DK. 2007. Turbidity and flow regime effects on periphyton development in a laboratory channel, *Trans. ASABE*, 50(3):1095-1104.

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10. Schramski JR, Gattie DK, Patten BC, Bata SA, Whipple SJ, Borrett SR, Fath BD. 2007. Indirect effects and distributed control in ecosystems. Distributed control in the environ networks of a seven-compartment model of nitrogen flow in the Neuse River Estuary, USA: Time series analysis, *Ecological Modelling*, 206(1-2): 18-30.
  11. Whipple SJ, Borrett SR, Patten BC, Gattie DK, Schramski JR, Bata SA. 2007. Indirect effects and distributed control in ecosystems: Comparative Network Environ Analysis of a Seven-Compartment Model of Nitrogen Flow in the Neuse River Estuary: Time Series Analysis, *Ecological Modelling*, 206(1-2): 1-17.
  12. Gattie DK, Schramski JR, Bata SA. 2006. Analysis of microdynamic environ flows in an ecological network, *Ecological Engineering*, 28(3): 187-204.
  13. Gattie DK, Schramski JR, Borrett SR, Patten BC, Bata SA, Whipple SJ. 2006. Indirect effects and distributed control in ecosystems: Network environ analysis of a seven-compartment model of nitrogen flow in the Neuse River Estuary, North Carolina, USA - Steady state analysis. *Ecological Modelling*, 194(1-3): 162-177.
  14. Schramski JR, Gattie DK, Patten BC, Borrett SR, Fath BD, Thomas CR, Whipple SJ. 2006. Indirect effects and distributed control in ecosystems: Distributed control in the environ networks of a seven-compartment model of nitrogen flow in the Neuse River Estuary, North Carolina, USA - Steady state analysis. *Ecological Modelling*, 194(1-3): 189-201.
  15. Gattie DK, Tollner EW, Foutz TL. 2005. Network environ analysis: A mathematical basis for describing indirect effects in ecosystems. *Transactions of ASAE, Vol. 48(4): 1645-1652.*
  16. Gattie DK, Lewis DL. 2004. A high-level disinfection standard for land-applying sewage sludges (biosolids). *Environmental Health Perspectives*, 112(2): 126-131.
  17. Gattie DK, Smith MC, Tollner EW, McCutcheon SM. 2003. The emergence of ecological engineering as a discipline. *Ecological Engineering*, 20(5): 409-420.
  18. Lewis DL, Gattie DK, Novak ME, Sanchez S, Pumphrey C. 2003. Interactions of pathogens and irritant chemicals in land-applied sewage sludges (biosolids). *New Solutions*, 12(4) 409-423.
  19. Lewis DL, Gattie DK, Novak M, Sanchez S, Pumphrey C. 2002. Interactions of pathogens and irritant chemicals in land-applied sewage sludges (biosolids). *BMC Public Health*, 2: 11.
  20. Das KC, Smith MC, Gattie DK, Boothe DH. 2002. Stability and quality of municipal solid waste compost from a landfill aerobic bioreduction process. *Advances in Environmental Research*. 6(3): 401-409.
  21. Lewis DL, Gattie DK. 2002. Risks from pathogens in land-applied sewage sludge (biosolids). *Environmental Science and Technology*. 36(13): 286A-293A.
  22. Edwards AJ, Smith MC, Gattie DK. 2002. Integrating water quality modeling with GIS to determine management strategies: a study of Fort Gordon, Georgia. *Journal of Spatial Hydrology*, 2: 1.
  23. Boothe DH, Smith MC, Gattie DK. 2001. Characterization of microbial populations in landfill leachate and bulk samples during aerobic bioreduction. *Advances in Environmental Research*. 5(3): 285-294.
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24. Smith MC, Gattie DK. 2000. Converting landfill processes from anaerobic to predominantly aerobic. *Elsevier, Eve-web. Today, Vol. 1, March 2000.*
  25. Smith MC, Gattie DK, Boothe DH, Das KC. 2000. Enhancing aerobic bioreduction under controlled conditions in a municipal solid waste landfill through the use of air injection and water recirculation. *Advances in Environmental Research. 3(4): 459-471.*

#### Conference Proceedings (17)

1. Wan J, Hester N, Li K, Gattie DK, Schramski JR, Jambeck J. 2011. Life Cycle Comparison of Two RO Concentrate Reduction Technologies. Georgia Water Resources Conference, Athens, GA, April 11-13, 2011.
  2. Kellam NN, Walther J, Gattie DK. 2009. An adaptive response model to describe emergent engineering education system properties. *Research in Engineering Education Symposium*, Melbourne School of Engineering, Palm Cove, Qld, Australia, July, 2009.
  3. Gattie DK, Kellam NN. 2008. Engineering education as a complex system. *Complexity Science and Educational Research Conference*, Athens, GA, February 3-5, 2008.
  4. Kellam NN, Gattie DK, Peters, W. 2007. Niche construction as an analog for improving educational systems. *Complexity Science and Educational Research Conference*, Vancouver, BC, Canada, February 18-20, 2007.
  5. Kellam NN, Gattie DK, Kazanci C. 2007. A network model of distributed and centralized systems of students. *Frontiers in Education*. Wisconsin, October 2007, Paper #1515.
  6. Gattie DK, Wicklein RC. 2005. Curricular value and instructional needs for infusing engineering design into K-12 Technology Education. *Proc. ASEE Intl. Mtg* (ASEE Paper 2005-3110-204).
  7. Tollner EW, Gattie DK. 2005. Extending thermodynamic concepts from the microscopic nonliving system to the macroscopic living system. *Proc. ASEE Intl. Mtg* (Paper# 2005-1408-234).
  8. Gattie DK, Tollner EW, Collins JV. 2003. Integrating Design Criteria for Management of Urban Ecosystems. *Proc. GA Water Res. Conf.*, pp. 425-428.
  9. Tanner Smith HM, Gattie DK, Smith MC, Byne FW, Collins JV. 2003. Gaps in Watershed Assessments in Georgia: Observations and Suggested Changes. *Proc. GA Water Res. Conf.*, pp 284-287.
  10. Gattie DK, Turk HJ. 2002. Introducing a service-learning component to a freshman engineering graphics course. *Proc. ASEE Intl. Mtg* (ASEE Paper 2002-1363).
  11. Smith MC, Rasmussen T, Gattie DK. 2002. Immersed in hydrology; buried in soils. *Proc. ASEE Intl. Mtg* (ASEE Paper 1580).
  12. Gattie DK, Smith MC, Smith HM, Byne FW. 2001. Watershed assessment within a Georgia Coastal Plain Municipality. ASAE Meeting Paper # 01-2003, *St. Joseph, MI.*
  13. Smith MC, Gattie DK, Byne FW, Smith HM. 2001. Watershed assessments for Georgia counties and municipalities. *Proc. GA Water Res. Conf.*, pp. 308-311.
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14. Gattie DK, Smith MC. 2000. Justification for incorporating ecological sciences into a natural resources engineering degree program with areas of emphasis in environmental and ecological engineering. *Proc. ASEE Intl. Mtg.*
  15. Lewis DL, Shephard S, Gattie DK, Sanchez S, Novak M. 2000. Enhanced susceptibility to infection from exposure to gases emitted by sewage sludge: A case study. *Proc. Biosolids Mgmt. 21<sup>st</sup> Century. NSF Workshop, pp. 152-159.*
  16. Smith MC, Gattie MC. 1999. A multi-disciplinary fifth-year certification program in water resources for biological and agricultural engineering students with a capstone interdisciplinary project course. *Proc. ASEE Intl. Mtg.*
  17. Smith MC, Gattie DK. 1999. Improved management practices for a Georgia landfill. *Proc. GA Water Res. Conf., pp. 80-83.*

### Presentations given at professional and learned societies (84)

-( \*Indicates Presenter, †Indicates Published Counterpart )-

1. \*Gattie DK. 2011. *Environmental Engineering: Traditional Standards and New Direction for the Next Generation*. Invited Lecture for the Facultad de Ingeniería, Universidad de Costa Rica, San Jose, Costa Rica, October 25, 2011.
  2. \*Wan J, Hester N, Li K, Gattie DK, Schramski JR, Jambeck J. 2011. Life Cycle Comparison of Two RO Concentrate Reduction Technologies. *Georgia Water Resources Conference*, Athens, GA, April 11-13, 2011.
  3. \*Schramski JR, Patten BC, Gattie DK, Kazanci C. 2011. Indirect Effects and Distributed Control in Ecosystems. *Institute for Biological Engineering Annual Conference*, Atlanta, GA, March 5, 2011.
  4. \*Choi I, Hong YC, Kellam NN, Gattie DK, Gay M. 2010. Ongoing design of a case-based E-learning system promoting engineering students' personal epistemology and real-world problem solving abilities: A formative evaluation. *World Conference on E-Learning in Corporate, Government, Healthcare, & Higher Education. 15<sup>th</sup> Annual Conference*, Orlando, FL.
  5. \*Schramski JR, Rutz ZJ, Gattie DK. 2010. Simulating trophically balanced agriculture. *International Society of Ecological Modelling*, Madrid, Spain.
  6. \*Schramski JR, Tollner EW, Gattie DK, Patten BC, Jambeck JR. 2010. Interdisciplinary modeling in engineering and ecological compartmental analysis: Case study of ecosystem energetic. *International Society of Ecological Modellers*, Quebec City, October 6, 2010.
  7. \*Schramski JR, Gattie DK, Rutz ZK, Li K, Jambeck JR, Rabe J. 2010. Modeling a trophically balanced thermodynamic economy: Considerations of energy networks in a fossil fuel free economic and corresponding ecological system. *International Society of Ecological Modellers*, Quebec City, October 6, 2010.
  8. \*Kellam NN, \*Walther J, Gattie DK. 2009. An adaptive response model to describe emergent engineering education system properties. *Research in Engineering Education Symposium*, Melbourne School of Engineering, Palm Cove, Qld, Australia, July, 2009.
  9. \*Gattie DK, Kellam NN. 2008. Engineering education as a complex system. *Complexity Science and Educational Research Conference*, Athens, GA, February 3-5, 2008.
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10. Kellam NN, Gattie DK. 2008. Developing a systems understanding of education through ecological concepts. *Complexity Science and Educational Research Conference*, Athens, GA, February 3-5, 2008.
  11. \*Tanner HS, Mullen J, Gattie DK, Houston J, Bramblett J. 2008. Determining cost and treatment effective soil combinations in bioretention cells for storm water management. *AEES Annual Meeting*, Blacksburg, VA, June 9-13, 2008.
  12. \*Kellam NN, Babcock AA, Gattie DK. 2008. The engineering learning environment: A proposed model. *ASEE International Meeting*, Pittsburg, PA, June 22-25, 2008.
  13. \*Kellam NN, Gattie DK. 2008. The engineering learning environment and it's level of complexity in an American Mechanical Engineering program. *Research in Engineering Education Symposium*, Davos, Switzerland, July 7-10, 2008.
  14. \*†Schramski JR, Patten BC, Kazanci C, Gattie DK, Kellam NN. 2008. Revealing ecosystem energetic through the Reynolds Transport Theorem in Ecological Network Analysis. Third Workshop on Ecological Network Analysis. Athens, GA, April 23-25 2008.
  15. \*†Kellam NN, Gattie DK, Kazanci C. 2007. A network model of distributed and centralized systems of students. *Frontiers in Education*. Wisconsin, October, 2007.
  16. \*Kellam NN, Gattie DK. 2007. A systems approach to teaching engineering design to non-engineers. *American Society of Engineering Education*, Hawaii, June, 2007.
  17. \*Gattie DK, Schramski JR. 2007. Environs, ascendancy, exergy and emergy: System-level properties for ecosystem analysis and the need for synthesis in ecological engineering. *AEES Annual Conference*. Manhattan, KS, May 23-25, 2007.
  18. \*Kellam NN, Gattie DK, Peters W. 2007. Niche construction as an analog for improving educational systems. 2007. *Complexity Science and Educational Research Conference*, Vancouver, BC, Canada, February 18-20, 2007.
  19. Gattie DK. 2006. Ecological Systems Analysis: The Modeling Problem. *ASABE International Meeting*. Portland, OR, July 2006.
  20. \*Gattie DK, Foutz TL. 2006. Development and Assessment of Critical Thinking Skills for Engineering Students. *ASEE International Meeting*, Chicago, IL, June 18-21, 2006.
  21. Gattie DK. 2006. Analysis of Ecosystem Properties and Function: Issues of Modeling. *AEES Annual Meeting*, Berkeley, CA, April 13-14, 2006.
  22. \*†Gattie DK, Turk HJ. 2006. Informing Ecological Engineering through Ecological Network Analysis. *Invited Presentation at the Ecosystem Networks Workshop*, University of Copenhagen, Copenhagen, Denmark, June 7-10, 2006.
  23. Gattie DK. 2005. Systems and Engineering Ecology. UGA Faculty of Engineering Annual Meeting. Athens, GA, October 24, 2005.
  24. \*†Gattie DK, Schramski JR, Bata SA. 2005. Ecological Network Analysis: An analytical methodology for mathematically deriving holistic ecosystem properties. *ASAE International Meeting*. Orlando, FL, July 2005
  25. \*†Gattie DK, Wicklein RC. 2005. Curricular value and instructional needs for infusing engineering design into K-12 Technology Education. *ASEE International Meeting*, Portland, OR, June 11-15, 2005.
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26. \*Gattie DK, Tollner EW. 2005. Developing student insight into living systems through network analysis. *ASEE International Meeting*, Portland, OR, June 11-15, 2005.
27. \*<sup>†</sup>Tollner EW, Gattie DK. 2005. Extending thermodynamic concepts from the microscopic nonliving system to the macroscopic living system. *ASEE International Meeting*, Portland, OR, June 11-15, 2005.
28. \*<sup>†</sup>Gattie DK, Schramski JR, Bata SA. 2005. Analysis of microdynamic environ flows in an ecological network. *AEES Annual Meeting*, Columbus, OH, May 18-20, 2005.
29. \*Gattie DK. Ecological Network Analysis. 2005. *AEES Annual Meeting*, Columbus, OH, May 18-20, 2005.
30. \*Wicklein RC and \*Gattie DK. 2005. Engineering design focus for Technology Education. *ITEA Annual Conference*, Kansas City, MO, April 2-5, 2005.
31. \*Hill RB, \*Wicklein RC, \*Gattie DK, and Thompson SA. 2005. Optimization: It's not Engineering design without it. *ITEA Annual Conference*, Kansas City, MO, April, 2005.
32. \*Gattie DK, Foutz TL. 2005. Systems and engineering ecology: A basis for developing fundamental ecological engineering sciences. *IBE Annual Meeting*, Athens, GA, March 4-6, 2005.
33. \*Gattie DK, Schramski JR, Bata SA. 2005. Holistic analysis of ecosystem properties and complexity. *IBE Annual Meeting*, Athens, GA, March 4-6, 2005.
34. \*Turk HJ, Gattie DK. 2005. Propagation of indirect causality by enfolded network transmittances. *IBE Annual Meeting*, Athens, GA, March 4-6, 2005. [Dr. Gattie is directing Mr. Turk's doctoral research]
35. \*Tollner EW, Gattie DK. 2005. Lagrangian and Eulerian perspectives on network analyses. *IBE Annual Meeting*, Athens, GA, March 4-6, 2005.
36. \*Borrett SR, Gattie DK, Patten BC, Whipple SJ, Schramski JR, Bata S. 2004. Throughflow decomposition and indicators of ecosystem complexity in Network Environ Analysis. *Ecosystem Complexity Workshop*, Bled Slovenia, September 25-26, 2004.
37. \*Thompson SA, Wicklein RC, Gattie DK, Hill R. 2004. *First Annual UGA Engineering Conference*, Athens, GA, October 28, 2004.
38. \*<sup>†</sup>Gattie DK, Schramski JR, Borrett SR, Patten BC, Whipple SJ. 2004. Network (Output) Environ Analysis of a nitrogen flow model. *First Annual UGA Engineering Conference*, Athens, GA, October 28, 2004.
39. \*<sup>†</sup>Gattie DK, Patten BC. 2004. Systems and engineering ecology. *First Annual UGA Engineering Conference*, Athens, GA, October 28, 2004.
40. \*Gattie DK, Foutz TL. 2004. The network construct as a foundation for developing ecological engineering science, *First Annual UGA Engineering Conference*, Athens, GA, October 28, 2004.
41. \*Patten BC, Gattie DK, Whipple SJ, Schramski JR, Borrett SR, Turk HJ, Fath BD. 2004. Environs and Network Environ Analysis: Introduction and Overview. *European Conference on Ecological Modelling*, Bled, Slovenia, Sept. 29-Oct. 1, 2004.

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42. \*†Gattie DK, Schramski JR, Borrett SR, Patten BC, Turk HJ. 2004. Network Environ Analysis of a Seven-Compartment Model of Nitrogen Flow in the Neuse River Estuary, USA: Steady-state Analysis. *European Conference on Ecological Modelling*, Bled, Slovenia, Sept. 29-Oct. 1, 2004.
  43. \*†Schramski JR, Gattie DK, Patten BC, Whipple SJ, Borrett SR, Fath BD. 2004. Distributed Control in the Environ Networks of a Seven-Compartment Model of Nitrogen Flow in the Neuse River Estuary, USA: Static Analysis. *European Conference on Ecological Modelling*, Bled, Slovenia, September 29-October 1, 2004.
  44. Schramski JR, \*Gattie DK, Patten BC, Bata SA, Whipple SJ, Borrett SR, Fath BD. 2004. Distributed Control in the Environ Networks of a Seven-Compartment Model of Nitrogen Flow in the Neuse River Estuary, USA: Time Series Analysis. *European Conference on Ecological Modelling*, Bled, Slovenia, September 29-October 1, 2004.
  45. \*Gattie DK, Tollner EW. 2004. Network Environ Analysis: A Rigorous and Formal Basis for an Ecological Engineering Science. *ASAE*, Ottawa, Canada, July 2004.
  46. \*†Gattie DK. 2004. Extending fundamental systems ecology into an engineering program of study: A focus on first principles at the graduate level. *ASEE*, Salt Lake City, UT, June 2004.
  47. \*Gattie DK, Tollner EW. 2004. Development of the University of Georgia Campus as an Urban Ecosystem Learning Laboratory. *ASEE*, Salt Lake City, UT, June 2004.
  48. \*Gattie DK, Schramski JR, Borrett SR, Patten BC, Turk HJ, Whipple SJ. 2004. Analysis of Ecosystem as a Network of Environments. *AEES*, Fayetteville, AR, 2004.
  49. \*Gattie DK, Foutz TL, Tollner EW. 2004. The Network Construct as a Foundation for Building an Ecological Engineering Science. *AEES*, Fayetteville, AR, June, 2004.
  50. \*Tanner HS, Gattie DK, 2004. Ecological Engineering: Science to Policy. *AEES*, Fayetteville, AR, June, 2004.
  51. \*Millington HK, Gattie DK. 2004. Developing Ecologically Sound Engineering Design Criteria for Small Stream Crossings to Provide Adequate Fish Passage. *AEES*, Fayetteville, AR, June 9-12, 2004. [Dr. Gattie directed Ms. Millington's M.S. Thesis]
  52. \*Turk HJ, Gattie DK. 2004. Toward Understanding Ecological Self-Design through Network Environ Analysis and Design Theory. *AEES*, Fayetteville, AR, June, 2004.
  53. \*Wicklein RC, \*Gattie DK. 2004. Bridges to Engineering. *ITEA*, Albuquerque, NM, March, 2004.
  54. Gattie DK, 2004. The Need for the Engineering Method in Technology Education. *Keynote Address for the Technology Education Collegiate Association Annual Meeting*, Virginia Beach, VA, February, 2004.
  55. \*Tollner EW, Gattie DK. 2004. Graduate Opportunities in Ecological Engineering at UGA: Micro-, Meso-, Basin Scales. *AEES*, Fayetteville, AR, June 9-12, 2004.
  56. \*Gattie DK. 2003. Watersheds or ecosystems? The need for an integrated approach to assessment analysis and management. *Georgia Urban Forestry Council*, Madison, GA, August 2003.
  57. Gattie DK, \*Smith MC, Winger PV, Smith HM, Byne FW, Collins JV. 2003. Integrated watershed assessments by linking biological metrics to physical habitat attributes and landuse characterization, *ASAE*, Las Vegas, Nevada, July 27-30, 2003.
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58. Gattie DK. 2003. Environmental and ecological aspects of engineering. *NSF Summer Institute. UGA College Ag. and Environ. Sciences*, Athens, GA, July, 2003.
59. \*Gattie DK, Smith MC, Rosemond A. 2003. Development of ecological engineering education at the University of Georgia. *ASEE* Nashville, TN, June 2003.
60. \*Gattie DK, Tollner EW. 2003. Integrating engineering, ecological and environmental design concepts into a capstone senior design project. *ASEE*, Nashville, TN, June 2003.
61. \*Gattie DK. 2003. Ecology and Engineering. *NSF Bridges to Engineering Summer Institute*, College of Ed. & Faculty of Engineering, UGA, Athens, GA, June, 2003.
62. \*Gattie DK, Borrett SR, 2003. Indirect Effects in Transport Networks. *AEES*, College Park, MD, May 2003.
63. \*<sup>†</sup>Gattie DK, Tollner EW, Collins JV. 2003. Integrating design criteria for management of urban ecosystems. *GA Water Res. Conf.*, Athens, GA, March 2003.
64. \*<sup>†</sup>Tanner Smith HM, Gattie DK, Smith MC, Byne FW, Collins JV. 2003. Gaps in Watershed Assessments in Georgia: Observations and Suggested Changes. *GA Water Res. Conf.*, Athens, GA, April 2003.
65. \*Gattie DK, Borrett SR. 2003. Network Indirect Effects in Transport Networks: Integral Elements of System Complexity. *IBE*, Athens, GA, January, 2003.
66. \*Matlock M., Hession C, Mitsch W, Brown M, Gattie DK. 2002. Ecological Engineering: Implementing a New Profession. *Ecosystem Health Conference*, Washington DC, July, 2002.
67. \*<sup>†</sup>Gattie DK, Turk HJ. 2002. Introducing a service-learning component to a freshman engineering graphics course. *ASEE*, Montreal Canada, June 2002.
68. <sup>†</sup>Smith MC, Rasmussen T, \*Gattie DK. 2002. Immersed in hydrology; buried in soils. *ASEE*, Montreal Canada, June 2002.
69. Tollner EW, Gattie DK, Smith MC. 2002. Steps to becoming an engineering discipline. *AEES*. Burlington, VT, April 28-30, 2002.
70. Gattie DK, \*Smith HM, Byne FW, Collins JV. 2002. Ecological Integrity for Watershed Assessments in Georgia. *GA Section ASAE*, Tybee Island, GA, May, 2002.
71. Gattie DK, Smith MC, \*Smith HM, Byne FW. 2001. Watershed assessment within a Georgia Coastal Plain Municipality. *ASAE*, Sacramento, CA, July 2001.
72. \*Smith MC, Gattie DK. 2001. Ecological Engineering in Academia: The Need for an Undergraduate Curriculum. *AEES*, Athens, GA, April 2001.
73. \*McCutcheon SM, Gattie DK. 2001. Ecological Engineering in Research. *AEES*, Athens, GA, April 2001.
74. \*Lewis DL, Gattie DK, Novak M. 2001. Health effects of land application of sludge. *Conference Proceedings Boston Univ. School of Public Health Conference on Sewage Sludge on Land: Public Health & Environmental Impacts*. November 2, 2001.
75. Gattie DK. 2001. What is Ecological Engineering? *UGA Chapter of the Soil and Water Conservation Society*. September 19, 2001.

76. Gattie DK. 2001. Ecological Engineering. *Northeast GA Chapter of the GA Soc. of Professional Engineers*. July 20, 2001.
77. †Smith MC, Gattie DK, \*Byne FW, Smith HM. 2001. Watershed assessments for Georgia counties and municipalities. *GA Water Res. Conf., March 2001*, Athens, GA.
78. Gattie DK. 2000. Ecology and Engineering. *Institute of Ecology Seminar Series*. University of Georgia, 2000. Athens, GA.
79. \*†Gattie DK, Smith MC. 2000. Justification for incorporating ecological sciences into a natural resources engineering degree program with areas of emphasis in environmental and ecological engineering. *ASEE, June 2000*. St. Louis, Missouri.
80. \*†Lewis DL, Shephard S, Gattie DK, Sanchez S, Novak M. 2000. Enhanced susceptibility to infection from exposure to gases emitted by sewage sludge: A case study. *National Science Foundation Workshop, April 2000*. College Park, Maryland.
81. \*†Smith MC, Gattie DK. 1999. Enhancing landfill decomposition by leachate recirculation and air injection *ASAE, July 1999, Toronto, Ontario, Canada*.
82. †Smith MC, \*Gattie DK. 1999. A multi-disciplinary fifth-year certification program in water resources for biological and agricultural engineering students with a capstone interdisciplinary project course. *ASEE, June 1999*, Charlotte, NC.
83. \*Gattie DK, Smith MC. 1999. Reducing methane generation by enhancing aerobic decomposition in a landfill under controlled conditions. *IBE, June 1999*, Charl., NC.
84. †Smith MC, \*Gattie DK. 1999. Improved management practices for a Georgia landfill. *GA Water Res. Conf., March 1999*. Athens, GA.

#### **Retrieval and Citable Abstracts or Publications (5)**

1. Gattie DK, Smith MC, Rosemond A. 2003. Development of ecological engineering education at the University of Georgia. *ASEE Ann. Conf. and Exp.*, Nashville, TN.
2. Gattie DK, Tollner EW. 2003. Integrating engineering, ecological and environmental design concepts into a capstone senior design project. *ASEE Ann. Conf. and Exp.*, Nashville, TN.
3. Matlock M., Hession C, Mitsch W, Brown M, Gattie DK. 2002. Ecological Engineering: Implementing a New Profession. *Ecosystem Health Conf.*, Washington DC, July, 2002.
4. Smith MC, Gattie DK. 2002. Enhancing aerobic bioreduction under controlled conditions in a municipal solid waste landfill through the use of air injection and water recirculation. ISSN/ISBN: 1093-0191. *Pollution Abstracts* Vol. 3, Issue 4, Pp. 459-471. AER paper was abstracted.
5. Lewis DL, Gattie DK, Novak M. 2001. Health effects of land application of sludge. *Boston Univ. School Pub. Health Conf. on Sewage Sludge on Land: Pub. Health & Environ. Impacts*.

**Technical Reports (9)**

1. Smith MC, Gattie DK. 2000. Evaluation of alternative treatment processes to reduce toxicity in municipality wastewater effluent. *Final Report submitted to City of Thomson, GA.*

**Submissions to GA Dept. Natural Resources-Environmental Protection Div.**

2. Tanner HS and Gattie DK. 2004. Watershed Assessment for Gray, GA, 263 pp.
3. Tanner HS, Gattie DK, Smith MC, Byne FW. 2003. Watershed Assessment for Ft. Valley, GA, 222 pp.
4. Collins VJ, Tanner HS, Gattie DK. 2003. Bioassessment of Arlington, GA watershed, 24 pp.
5. Tanner HS, Gattie DK, Smith MC, Byne FW. 2002. Watershed Assessment for Statham, GA, 232 pp.
6. Tanner HS, Smith MC, Gattie DK, Byne FW. 2002. Watershed Assessment for Valdosta, GA, 238 pp.
7. Tanner HS, Gattie DK, Smith MC, Byne FW. 2002. Watershed Assessment for Thomasville, GA, 198 pp.
8. Tanner HS, Gattie DK, Smith MC, Byne FW. 2002. Watershed Assessment for Lowndes County, GA, 190 pp.
9. Smith HM, Smith MC, Gattie DK, Byne FW. 2001. Watershed Assessment for Millen, GA, 221 pp.

**Seminars & Workshops (4)**

1. Engineering Design Workshop for the NSF-National Center for Engineering and Technology Education. Logan, UT. Utah State University, May 24-26, 2005.
2. International Workshop-Ecosystem Complexity. Bled, Slovenia. Sept.25-26, 2004.
3. Infusing Engineering Design into Technology Education. Rockdale County High School, with Dr. Robert Wicklein, UGA College of Education, June 14-16, 2004.
4. NSF Bridges for Engineering. University of Georgia, Dept. of Biological and Agricultural Engineering and the College of Education. June 2003.

**ACADEMIC COURSES TAUGHT**

**University of Georgia**

ENGR 1020	Surveying
ENGR 1120	Engineering Graphics & Design
ENGR 1920	Introduction to Engineering
ENVE 2610	Introduction to Environmental Engineering & Sustainability
ENVE 4250	Industrial Ecology
ENGR 3050	Soil & Water Conservation
ENGR 3120	Spatial Data Analysis
ENGR 3150	Heat Transfer
ENGR 3160	Fluid Mechanics
ENGR 3410	Introduction to Natural Resource Engineering
ENGR 3440	Water Management
ENVE 4250	Industrial Ecology
ENGR 4920	Engineering Senior Design
ENVE 4910	Environmental Engineering Design III
ENVE 4920	Environmental Engineering Design IV
ENGR 8560	Systems and Engineering Ecology
ENGR 8980	Engineering Design: Synthesis, Analysis, & Systems Thinking
FRES 1010	Freshman Seminar
FYOS 1001	First-Year Odyssey Seminar

**RESEARCH GRANTS, AWARDS, OR GIFTS RECEIVED**

<i>Date</i>	<i>Title</i>	<i>Source</i>	<i>Amount</i>	<i>Role (Share)</i>
2010-12	Making Connections: A Theory of Synergistic Learning in Engineering	NSF	\$400,000	CO-PI 25%
2010	Low Energy Agro-Ecological Farming (LEAF)	USDA	\$45,713	CO-PI 30%
2009-2011	Case-based E-Learning for Solving Real-World Engineering Design Problems: Nurturing Epistemic Growth for Second Year College Students	NSF	\$150,000	CO-PI (25%)
2009	International service-learning in rural Latin America: Engaging students with community in the complex management of ecological services	UGA-OVPPSO International Scholarship of Engagement	\$6600	PI (100%)
2009-2010	Preparing engineering students to be global citizens with case-based e-learning technology	UGA Learning Technologies Grant	\$30,000	CO-PI (30%)
2005-2006	Engineering Design Cognitive Capabilities Evaluation Instrument	NSF-NCETE	\$10,000	CO-PI (33%)
2005	State of the Art Conference: Ecological Network Analysis	UGA, Office of the Provost	\$10,000	PI (100%)
2004-2009	National Center for Engineering and Technology Education	National Science Foundation	\$10,000,000 (Center) \$1,097,347 (UGA) \$274,336 (Gattie)	Sr. Collaborator (25% of UGA share)
1/2000 - Present	Comprehensive watershed assessments in Georgia	Individual counties and municipalities in partnership with Carter & Sloope	\$1,074,000	Co-PI (50%)
1/2004-12/2004	Network analysis for urban ecosystem management and decision-making	UGA OVPR, Jr. Faculty Research Grant	\$3100	PI (100%)
9/2004	Travel Grant for professional Conference in Slovenia	UGA Office of Provost	\$1375	PI (100%)
6/2004	Travel grant for professional conference in Arkansas	UGA Office of Provost	\$998	PI (100%)
1/2003-8/2003	Biological and physical habitat assessment of streams in Arlington, GA	City of Arlington, GA/partnership with Stevens & Palmer	\$26,000	PI (100%)
3/2002	Travel grant for research in Costa Rica	Selvatica Biological Research Station	\$900	PI (100%)
1/2001-12/2003	Source water protection for Georgia communities	Georgia Dept. of Natural Resources	\$105,000	Co-PI (50%)
8/2001	Travel grant for research in Ecuador	UGA Office of International Agriculture	\$750	PI (100%)
4/2000-10/2000	Alleviating Toxicity of Municipal Wastewater	City of Thomson, GA	\$29,329	Co-PI (50%)
1/2000-12/2003	Effects of BMP's on water quality in an agricultural watershed	Oconee River Conservation & Development	\$109,600	Co-PI (30%)